

IN THE CLAIMS:

No amendments are being made to the claims; however, the claims as pending are provided below for the Examiner's convenience.

1. (Previously Presented) An optical element comprising:

a substrate;

a first diffraction grating which is formed of titanium, or a compound thereof, disposed on the substrate and having a period that is shorter than a light wavelength used; and

a second diffraction grating which is formed of aluminum, disposed on the first diffraction grating and having a period that is shorter than the light wavelength used,

wherein the melting point of a material of the first diffraction grating is higher than the melting point of a material of the second diffraction grating.

2. (Canceled)

3. (Previously Presented) An optical element according to Claim 1, wherein a diffusion coefficient of the material of the first diffraction grating is less than a diffusion coefficient of the material of the second diffraction grating.

4. (Canceled)

5. (Previously Presented) An optical element according to Claim 1, wherein a thin film that has a smaller refractive index than the substrate is disposed between the substrate and the first diffraction grating.

6. (Original) An optical element according to Claim 1, wherein each grating period that is shorter than the light wavelength used falls in a range of from at least 30 nm to 200 nm at most.

7. (Previously Presented) An optical element according to Claim 5, wherein the thin film is formed of MgF_2 .

8. (Previously Presented) An optical element according to Claim 1, wherein the first diffraction grating is formed of titanium nitride.

9. (Previously Presented) An optical element according to Claim 1, further comprising a third diffraction grating which is formed of titanium, or a compound thereof, disposed on the second diffraction grating.

10. (Previously Presented) An optical element according to Claim 1, further comprising an optical member for protecting the first and second diffraction gratings, which is disposed over the second diffraction grating with a predetermined space.